IN THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1.(Currently Amended) An arrangement for influencing magnetic particles in a region of action, ~~which arrangement has~~the arrangement comprising:

~~a)~~ means for generating a magnetic field having a pattern in space of its magnetic field strength such that a first sub-zone ~~(301)~~ having a low magnetic field strength and a second sub-zone ~~(302)~~ having a higher magnetic field strength are formed in the region of action,

~~b)~~ means for changing the position in space of the two sub-zones in the region of action so that the magnetization of the particles changes locally,

~~c)~~ means for acquiring signals, which signals depend on the magnetization in the region of action, which magnetization is influenced by the change in the position in space,

~~d)~~ an analyzing unit for obtaining information, from the

signals, on the magnetic particles in the region of action,

~~e)~~ a control unit for controlling the means in such a way that

[-] in a first mode of operation, the position of the two sub-zones is changed, the signals resulting therefrom are acquired, and information on the spatial distribution of the magnetic particles in the region of action is determined from the signals,

[-] in a second mode of operation, the position in space of the two sub-zones is changed for so long, and at a frequency such, that at least part of the region of action is thereby heated up, wherein the means for generating the magnetic field comprise a gradient coil arrangement for generating a gradient magnetic field that reverses its direction and has a zero crossing in the first sub-zone.

2.(Currently Amended) ~~An~~The arrangement as claimed in claim 1, wherein~~, in a third mode of operation,~~ the control unit controls the means ~~in such a way that both~~ to execute the second mode of operation ~~is executed~~ and ~~also, simultaneously,~~ simultaneously acquire the signals resulting from the change in the position of

the two sub-zones ~~are acquired~~ and determine information on the spatial distribution of the magnetic particles in the region of action ~~is determined therefrom~~.

3. (Canceled)

4. (Currently Amended) ~~An arrangement as claimed in claim 1,~~ An arrangement for influencing magnetic particles in a region of action comprising:

means for generating a magnetic field having a pattern in space of its magnetic field strength such that a first sub-zone having a low magnetic field strength and a second sub-zone having a higher magnetic field strength are formed in the region of action,

means for changing the position in space of the two sub-zones in the region of action so that the magnetization of the particles changes locally,

means for acquiring signals, which signals depend on the magnetization in the region of action, which magnetization is influenced by the change in the position in space,

an analyzing unit for obtaining information, from the signals, on the magnetic particles in the region of action,

a control unit for controlling the means in such a way that

in a first mode of operation, the position of the two sub-zones is changed, the signals resulting therefrom are acquired, and information on the spatial distribution of the magnetic particles in the region of action is determined from the signals,

in a second mode of operation, the position in space of the two sub-zones is changed for so long, and at a frequency such, that at least part of the region of action is thereby heated up, wherein the two sub-zones in the region of action are shifted in position by a temporally variable magnetic field that is superimposed on the gradient magnetic field.

5.(Currently Amended) An arrangement as claimed in claim 1, wherein the signals induced in the region of action by ~~the~~ a temporal variation in the magnetization are received ~~with the help of~~ by a coil arrangement.

6.(Currently Amended) A method for influencing magnetic

particles in a region of action~~, which method has the following steps~~ comprising the acts of:

~~a)~~ generation of a magnetic field having a pattern in space of its magnetic field strength such that a first sub-zone ~~(301)~~ having a low magnetic field strength and a second sub-zone ~~(302)~~ having a higher magnetic field strength are formed in the region of action,

~~b)~~ changing the position in space of the two sub-zones in the region of action so that the magnetization of the particles changes locally,

~~c)~~ acquiring signals that depend on the magnetization in the region of action, ~~which~~ wherein magnetization is influenced by the above change in position,

~~d)~~ analyzing the signals to obtain information on the spatial distribution of the magnetic particles in the region of action,

~~e)~~ defining a region for heating-up that is at least part of the region of action,

~~f)~~ changing the position in space of the two sub-zones in the region of action ~~for so long,~~ for a time and at a frequency

~~such,~~ so that the defined region ~~for heating-up that has been defined~~ heats up,

shifting the position of the two sub-zones in the region of action by a temporally variable magnetic field that is superimposed on the gradient magnetic field.

7.(Currently Amended) ~~A~~The method as claimed in claim 6, wherein the steps ~~c) and d)~~ of acquiring signals that depend on the magnetization in the region of action, wherein the magnetization is influenced by the above change in position, and

analyzing the signals to obtain information on the spatial distribution of the magnetic particles in the region of action

are also performed ~~in addition~~ during the heating-up of the defined region ~~for heating-up~~.

8.(New) A system for influencing magnetic particles in a region of action comprising:

a generator configured to generate a magnetic field comprising a pattern in space of its magnetic field strength such that a first sub-zone having a low magnetic field strength and a second sub-zone

having a higher magnetic field strength are formed in the region of action,

a position changer configured to change the position in space of the two sub-zones in the region of action so that the magnetization of the particles changes locally,

an signal acquirer configured to acquire signals, which signals depend on the magnetization in the region of action, which magnetization is influenced by the change in the position in space,

an analyzing unit configured to obtain information, from the signals, on the magnetic particles in the region of action,

a control unit configured to control a first mode of operation wherein the position of the two sub-zones is changed, the signals resulting are acquired, and information on the spatial distribution of the magnetic particles in the region of action is determined from the signals, and configured to control a second mode of operation wherein the position in space of the two sub-zones is changed at a frequency such that at least part of the region of action is thereby heated up,

wherein the magnetic field generator comprises a gradient coil arrangement configured to generate a gradient magnetic field that

reverses its direction and has a zero crossing in the first sub-zone.

9.(New) A system for influencing magnetic particles in a region of action comprising:

a generator configured to generate a magnetic field comprising a pattern in space of its magnetic field strength such that a first sub-zone having a low magnetic field strength and a second sub-zone having a higher magnetic field strength are formed in the region of action,

a position changer configured to change the position in space of the two sub-zones in the region of action so that the magnetization of the particles changes locally,

an signal acquirer configured to acquire signals, which signals depend on the magnetization in the region of action, which magnetization is influenced by the change in the position in space,

an analyzing unit configured to obtain information, from the signals, on the magnetic particles in the region of action,

a control unit configured to control a first mode of operation wherein the position of the two sub-zones is changed, the signals

resulting are acquired, and information on the spatial distribution of the magnetic particles in the region of action is determined from the signals, and configured to control a second mode of operation wherein the position in space of the two sub-zones is changed at a frequency such that at least part of the region of action is thereby heated up,

wherein the two sub-zones in the region of action are shifted in position by a temporally variable magnetic field that is superimposed on the gradient magnetic field.

10.(New) The arrangement in claim 8, wherein the control unit is configured to execute the second mode of operation, to acquire the signals resulting from the change in the position of the two sub-zones and to determine information on the spatial distribution of the magnetic particles in the region of action simultaneously.

11.(New) The arrangement in claim 9, wherein the signals induced in the region of action by a temporal variation in the magnetization are received by a coil arrangement.